DESIGN

Design, and the resultant development of new technologies, has given rise to profound changes in society: transforming how we access and process information; how we adapt our environment; how we communicate with others; how we are able to solve problems; how we work and live.

Design is the link between innovation and creativity, taking thoughts and exploring the possibilities and constraints associated with products or systems, allowing them to redefine and manage the generation of further thought through prototyping, experimentation and adaptation. It is human-centred and focuses on the needs, wants and limitations of the end user.

Competent design is not only within the reach of a small set of uniquely skilled individuals, but can be achieved by all. The use of well-established design principles and processes increases the probability that a design will be successful. To do this, designers use a wide variety of principles which, taken together, make up what is known as the **design cycle**. MYP design requires the use of the design cycle as a tool, which provides the methodology used to structure the inquiry and analysis of problems, the development of feasible solutions, the creation of solutions, and the testing and evaluation of the solution. In MYP design, a solution can be defined as a model, prototype, product or system that students have developed and created independently. *(MYP Design Guide, 2023)*

The aims of MYP design are to encourage and enable students to:

- enjoy the design process, develop an appreciation of its elegance and power
- develop knowledge, understanding and skills from different disciplines to design and create solutions to problems using the design cycle
- use and apply technology effectively as a means to access, process and communicate information,
- model and create solutions, and to solve problems
- develop an appreciation of the impact of design innovations for life, global society and environments
- appreciate past, present and emerging design within cultural, political, social, historical and environmental contexts
- develop respect for others' viewpoints and appreciate alternative solutions to problems
- act with integrity and honesty, and take responsibility for their own actions developing effective working practices.

Design Technology KUD Articulation

GRADE 7 (MYP 2) UNIT 1		
Know What other essential *knowledge information* is needed for this unit?	**Understand** What other *understanding* will students gain from learning the knowledge information of this unit?	**Do** What skills do students further need to develop in deepening the learning of the *knowledge information* and their *understanding*?
• The types and quantities of waste produced by everyday consumption, particularly plastics. • Methods and processes for recycling and repurposing common household waste materials into toys. • Safety protocols for handling tools and materials in the design workshop. • The ethical responsibilities of designers and consumers regarding sustainability. • Simple testing methods to evaluate the effectiveness of designed toys. • Techniques for effectively documenting the design and creation process.	• The importance of sustainability in communities through reuse and recycling of resources. • How consumer behavior and industry design decisions impact environmental sustainability. • The role adaptation plays in developing sustainable products from existing resources. • The ethical implications of product design and manufacturing, particularly in the toy industry. • The impact of their design choices on specific audiences, notably younger children.	• Conduct structured research on waste, sustainability, and toy production using primary and secondary sources. • Analyze existing toys to identify features, materials, and sustainability aspects as inspiration for their own designs. • Clearly define design problems, justify the need for sustainable solutions, and outline the impact on communities and environments. • Create multiple feasible design sketches and receive constructive peer and user feedback to refine ideas. • Develop detailed planning drawings and diagrams outlining materials, tools, and the logical sequence of creating their toy. • Demonstrate technical skills by safely handling tools and accurately following their own design plans to create functional toys from recycled materials. • Document the entire creation process with photographs, written descriptions, and time management records. • Evaluate their designed toys through user testing (with PYP students), assessing against predetermined success criteria. • Clearly communicate successes, identify specific improvements, and explain the potential positive or negative impact of their toys on end users. • Collaborate effectively by providing and receiving meaningful peer feedback. • Reflect on their learning experiences, challenges encountered, and new skills developed throughout the unit.

GRADE 7 (MYP 2) UNIT 2		
Know What other essential *knowledge information* is needed for this unit?	**Understand** What other *understanding* will students gain from learning the knowledge information of this unit?	**Do** What skills do students further need to develop in deepening the learning of the *knowledge information* and their *understanding*?
• Elements and principles of graphic design, including form, function, aesthetics, balance, negative space, contrast, repetition, alignment, and proximity (CRAP principles). • Techniques for visually communicating impactful messages about global issues. • The role of emotional appeal in design, particularly regarding sensitive global topics such as endangered species, climate change, and other sustainability concerns. • How images, symbols, and visual media effectively convey meanings and stories beyond written text. • Key design software skills in Affinity Publisher, Affinity Designer, Affinity Photo. • Ethical considerations in graphic design, especially regarding copyright and use of digital assets.	• Effective Graphic Design can significantly influence public perception and awareness of global issues. • Designers have ethical responsibilities to communicate messages clearly, effectively, and truthfully. • Good Design has the potential to impact social change positively and sustainably. • Symbols and images carry context-dependent meanings that are crucial in global communication. • The traditional forms of communication (text-heavy) may not always be effective, especially when aiming to educate or raise awareness among younger or broader audiences.	• Conduct structured research using primary and secondary sources to inform their understanding of global issues and design solutions. • Create detailed research plans identifying and prioritising essential research questions and potential sources. • Analyse and evaluate existing graphic design products (Posters) related to global issues using systematic frameworks such as ACCESSFM and specially **ABSCRAP**. • Develop a comprehensive and purposeful design brief based on detailed research and analysis. • Generate multiple creative design ideas, clearly annotating their sketches and refining their chosen concept with feedback. • Prepare detailed planning drawings and clearly outlined specifications including fonts, imagery, layout elements, and messaging. • Execute their design solution using graphic design software (Affinity package), demonstrating excellent technical skills. • Document their design process thoroughly, capturing evidence of each significant step via screenshots, annotations, and reflective commentary. • Evaluate their poster designs by applying appropriate testing methods such as field tests, user surveys, or visual impact observations, collecting and analysing data. • Reflect critically on the success of their design solutions against predefined specifications, proposing clear, justified improvements. • Assess and describe the impact of their graphic design posters on their target audience, considering effectiveness in raising awareness or prompting action on global issues. • Demonstrate resilience and adaptability by making justified design changes based on practical constraints or feedback during the production phase. • Actively engage in collaborative processes, giving and receiving constructive peer feedback to improve their work. • Communicate their final graphic design solutions (printed Posters) effectively to the broader RIS community to advocate for awareness and engagement in global sustainability goals. This will be done by displaying the posters across the school lobby.

GRADE 8 (MYP 3) UNIT 1		
Know What other essential *knowledge information* is needed for this unit?	**Understand** What other *understanding* will students gain from learning the knowledge information of this unit?	**Do** What skills do students further need to develop in deepening the learning of the *knowledge information* and their *understanding*?
• The principles of buoyancy and how boats float. • Materials and design techniques that increase boat buoyancy. • How boats can be propelled. • Different materials suitable for boat construction, their properties, and sustainability impacts. • The significance and historical context of shipbuilding, particularly relating to Norwegian and Viking culture. • Design specifications and success criteria for creating effective scale models. • Techniques for conducting meaningful tests to evaluate the success of their designs.	• Shipbuilding involves understanding the purpose and function beyond just the materials used. • The relationship between a boat's design, materials, and its buoyancy/functionality. • How innovation and creativity influence shipbuilding and its future sustainability. • The environmental impacts of materials and energy choices within the shipping industry. • The implications of technological innovation on maritime transport and sustainability. • The importance of detailed analysis and evaluation in the MYP Design Cycle/Design Process.	• Conduct primary and secondary research to inform the design of a boat scale model. • Analyse existing boat designs to inspire their own innovative solutions. • Develop and refine a clear design brief and specification for their project. • Generate multiple design ideas, evaluate these through peer feedback, and choose the most suitable design to prototype. • Demonstrate excellent technical skills by constructing accurate scale models of boats. • Follow and adapt a detailed plan, managing resources and time efficiently. • Perform and document detailed tests (e.g., buoyancy tests) to evaluate their boat scale models. • Critically assess their design against the initial specifications, suggesting improvements and clearly identifying the impacts on the intended audience. • Collaborate effectively, demonstrate resilience, and reflect thoughtfully on their learning process.

GRADE 8 (MYP 3) UNIT 2		
Know What other essential *knowledge information* is needed for this unit?	**Understand** What other *understanding* will students gain from learning the knowledge information of this unit?	**Do** What skills do students further need to develop in deepening the learning of the *knowledge information* and their *understanding*?
• The elements and principles of graphic design including shapes, color theory, typography, imagery, and balance. • Characteristics and functions of effective logos and brand identities. • Differences between raster (bitmap) and vector graphics. • How to use graphic design software, specifically Affinity Designer, Affinity Publisher and Affinity Photo, to develop professional-quality logos. • Methods for conducting primary and secondary research in graphic design contexts. • Techniques for evaluating the success of logos and branding designs through authentic testing methods.	• Logos and branding are powerful tools for visual communication, conveying complex ideas succinctly across diverse global audiences. • Good logos effectively communicate brand identity and are memorable without explicitly describing the company's products or services. • Technological advancements provide designers with tools and opportunities to innovate and develop design prototypes. • Client needs significantly influence the decisions and techniques in the design process. • Designers follow a structured, iterative process of Design Thinking to develop and refine creative solutions (the MYP Design Cycle). • The importance of visual balance, readability, and appropriateness in logo design.	• Independently create a research plan to inform the design of logos and branding strategies. • Conduct detailed analysis and summarization of research findings from primary and secondary sources. • Analyze and critique existing logos to extract inspiration and inform design decisions. • Create multiple design concepts (sketches and digital iterations), using appropriate graphic design conventions. • Clearly articulate the rationale for selecting specific logo designs based on specified success criteria. • Develop detailed, annotated planning drawings and accurate digital representations of the final chosen design. • Construct a logical, step-by-step plan for the creation of a logo, efficiently allocating time and resources. • Demonstrate excellent technical skills and creativity by utilizing graphic design software to create professional-quality logo designs.

		- Document the creative process thoroughly through screenshots, annotations, and reflections. - Evaluate their designs objectively through tests (e.g., audience feedback, visual clarity tests), reflecting critically on how their designs meet original specifications. - Suggest and justify improvements based on evaluation outcomes. - Reflect on the impact of their designed solution (logo/brand) on the targeted audience, considering aspects such as appeal, memorability, and clarity. - Showcase resilience and adaptability through iterative design processes, dealing constructively with challenges and feedback. - Engage collaboratively, providing and receiving meaningful peer feedback throughout the design process.

GRADE 9 (MYP 4) UNIT 1		
Know What other essential *knowledge information* is needed for this unit?	**Understand** What other *understanding* will students gain from learning the knowledge information of this unit?	**Do** What skills do students further need to develop in deepening the learning of the *knowledge information* and their *understanding*?
- Principles of effective web design, including user interface (UI) and user experience (UX) design principles. - How design is influenced by the identity, attitudes, and motivations of the client and community. - Techniques for effective digital branding, including the use of colour theory, typography, images, and layout (ABSCRAP principles). - The importance of empathy in design, especially when targeting specific community needs. - How to effectively conduct and differentiate between primary and secondary research. - Strategies to evaluate existing websites critically for inspiration and improvement. - Appropriate tools and software skills using Affinity Publisher, Affinity Photo, and Affinity Designer.	- Invention and design significantly impact community relationships by addressing specific needs and fostering personal efficacy and happiness. - Design solutions must be tailored and responsive to client or community identity and requirements; there isn't always a "one size fits all" solution. - The balance between form and function can heavily influence the effectiveness and adoption of a website. - Effective digital communication through web design can lead to stronger connections and community development. - The ethical implications of their designs and actions on local and global communities, emphasising empathy and community-focused solutions.	- Conduct comprehensive research to identify and prioritise the needs of a chosen target audience. - Develop detailed, structured research plans identifying primary and secondary sources necessary for informing their design solution. - Critically analyse and document a variety of existing web products that can inspire their designs. - Create detailed design briefs clearly outlining their website goals, target audience needs, constraints, and success criteria. - Generate a range of feasible and detailed design ideas through sketches and annotated diagrams for a web design layout. - Choose and clearly justify the final website design using criteria from their research, peer feedback, practical considerations (skills, time, resources), and specifications. - Produce accurate and detailed planning drawings and diagrams that clearly communicate the final design solution. - Develop and follow a logical, structured plan outlining the efficient use of time, resources, software tools, and materials required to construct the website. - Execute their web design solution demonstrating excellent technical skills, documenting each step through screenshots, descriptions, and reflections. - Conduct multiple detailed testing methods (e.g., surveys, field tests, user trials) to collect authentic data assessing the success of their final website design. - Critically evaluate the completed web design against original specifications, identify areas for improvement based on detailed data analysis, and justify any changes made. - Clearly describe the impact their web solution has on the identified target audience, considering how effectively it addressed the initially identified problem. - Reflect critically on their own learning processes, challenges, and achievements, demonstrating persistence, resilience, and the ability to manage and organise tasks

		effectively. ● Engage actively in peer collaboration, providing and receiving constructive feedback to refine and improve their web designs. ● Make meaningful connections to Sustainable Development Goals (SDGs), describing explicitly how their design positively impacts these broader objectives.

GRADE 9 (MYP 4) UNIT 2		
Know What other essential *knowledge information* is needed for this unit?	**Understand** What other *understanding* will students gain from learning the knowledge information of this unit?	**Do** What skills do students further need to develop in deepening the learning of the *knowledge information* and their *understanding*?
● Environmental impact statistics and sustainability issues within the fashion industry. ● Concepts and practices related to up-cycling and circular economy principles. ● Industry-related terminology and symbols, specifically in fashion and product design. ● The principles of ergonomics and anthropometrics for fashion design. ● Various techniques for repurposing textile products and fashion accessories. ● Vector design software basics (Affinity Designer). ● How to identify and analyse market trends and customer preferences relevant to fashion.	● The environmental significance and necessity of sustainable practices in fashion production and consumption. ● How up-cycling can significantly reduce environmental impact and contribute positively to a circular economy. ● The relationship between creativity, market trends, and successful sustainable products. ● The importance of clearly defined product specifications to meet the intended purpose and user needs. ● The potential entrepreneurial opportunities that exist in sustainable product design. ● That product design and functionality must be user-centred, prioritising ergonomic considerations and client needs.	● Conduct thorough primary and secondary research to identify problems within current fashion consumption practices. ● Critically analyse a variety of existing fashion products, identifying sustainable features, potential for improvement, and inspiration. ● Create detailed mood boards to visually capture and communicate design ideas and inspiration. ● Develop a comprehensive, clear design brief outlining their product's goal, target audience, success criteria, potential constraints, and research findings. ● Generate a range of innovative and feasible fashion design sketches (minimum of 6 initial sketches), refining at least three into detailed design drawings with annotations. ● Present and justify their final selected design, providing clear reasons connected to design specifications, feasibility, and feedback. ● Develop precise technical drawings and planning diagrams detailing the materials, dimensions, and features of their fashion up-cycling product. ● Construct a detailed, logical plan outlining the steps, materials, resources, tools, safety considerations, and time management required for creating their product. ● Demonstrate excellent technical skills during prototyping, effectively handling various tools and materials such as textiles, canvas, plastic, and leather. ● Document the design and making process thoroughly through photographs, annotations, and reflective descriptions of techniques and materials used. ● Actively seek and document peer feedback, demonstrating collaboration skills, perseverance, resilience, and adaptability throughout the design process.

		• Conduct multiple relevant tests, including surveys, field tests, user trials, and expert appraisals, to evaluate their final product against the original specifications. • Critically evaluate their final product, clearly documenting successes, failures, and areas for improvement based on authentic test data. • Describe the impact of their solution on their identified target audience, linking it explicitly to Sustainable Development Goal 12 (Responsible Consumption and Production). • Reflect critically on their learning experience, describing how challenges were overcome and identifying areas for continued improvement and personal growth. • Showcase their final up-cycled fashion products at the RIS Makers Fair, providing inspiration and raising awareness within the wider school community about sustainable fashion practices and opportunities.

GRADE 10 (MYP 4) UNIT 1		
Know What other essential *knowledge information* is needed for this unit?	**Understand** What other *understanding* will students gain from learning the knowledge information of this unit?	**Do** What skills do students further need to develop in deepening the learning of the *knowledge information* and their *understanding*?
• The fundamental human rights outlined by the United Nations' Universal Declaration of Human Rights. • Graphic design principles (Contrast, Repetition, Alignment, Proportion, etc. - CRAP/ABSCRAP). • Techniques for effective visual communication and activism through design. • How to use industry-standard design software, particularly Affinity Publisher, along with Affinity Photo and Affinity Designer. • How magazines utilise design elements to effectively communicate and engage readers. • The methods for researching and analysing primary and secondary sources effectively.	• Design can be a powerful form of activism, significantly impacting societal attitudes towards human rights issues. • Their own role, power, and privilege in advocating for human rights and justice. • Effective communication through design can motivate individuals and communities to take informed action. • The relationship between effective design and audience engagement, particularly when addressing sensitive or complex social issues. • How considerations of fairness, equity, and development influence design decisions and impact outcomes.	• Develop structured research plans identifying the primary and secondary information necessary for creating a human rights-focused magazine. • Critically analyse existing magazines (covers and content pages) using structured frameworks (ABSCRAP) to identify effective communication strategies. • Develop a detailed and justified design brief clearly outlining design goals, target audience needs, potential challenges, and success criteria informed by research. • Generate multiple creative design ideas through sketching and annotation, focusing specifically on magazine covers and internal spreads. • Clearly articulate and justify their final selected design, using objective criteria based on design specifications, feasibility, and peer feedback. • Create detailed, accurate, and refined planning drawings and diagrams for their chosen magazine layout. • Construct a comprehensive and logical production plan outlining all necessary steps, time management, software tools, and materials required. • Demonstrate technical proficiency with graphic design software, documenting the creation process meticulously with screenshots and descriptive annotations. • Design and produce a professional-quality magazine consisting of a cover, six internal content spreads, and a back cover. • Conduct various relevant tests (e.g., surveys, expert appraisal, user feedback) to assess the success of their magazine designs. • Critically evaluate the effectiveness of their

		magazine against predefined design specifications, documenting areas of success and those needing improvement. ● Propose and justify improvements clearly, supported by sketches and written rationales based on feedback and data analysis. ● Explain the impact their magazine has on the intended audience, specifically related to raising awareness and prompting action regarding human rights violations. ● Reflect thoughtfully on their learning process, identifying challenges encountered, strategies for overcoming them, and areas for future growth. ● Engage in peer collaboration, providing meaningful feedback, and receiving constructive critiques to refine and enhance their work.

GRADE 10 (MYP 4) UNIT 2		
Know What other essential *knowledge information* is needed for this unit?	**Understand** What other *understanding* will students gain from learning the knowledge information of this unit?	**Do** What skills do students further need to develop in deepening the learning of the *knowledge information* and their *understanding*?
● The principles of sustainable product design aligned with SDG 12 (Responsible Consumption and Production, specifically Target 12-8). ● The meaning and importance of empathy in design and relationships. ● How to identify user needs without direct communication (“ninja research”). ● The process and stages of the MYP Design Cycle: Inquiring and Analysing, Developing Ideas, Creating the Solution, Evaluating. ● Safe and effective techniques and procedures in various product design approaches/projects (textiles, woodwork, metals and other resistant materials). ● Rendering techniques and methods to visually communicate product materials and aesthetics clearly.	● Designing personalised products can significantly enhance interpersonal relationships and social connections. ● Empathy is a critical skill in design, requiring deep understanding of another person’s preferences, experiences, and context. ● The value of giving as a means to strengthen emotional bonds and promote personal well-being. ● The role of sustainability in product design and its long-term impact on individuals and the environment. ● That a well-considered, tailored design can meet specific emotional or functional needs more effectively than generic solutions.	● Conduct indirect research (“ninja research”) to learn about their assigned classmate’s interests, needs, and preferences without directly communicating with them. ● Critically analyse existing products relevant to their chosen product type using structured frameworks like ACCESSFM. ● Develop a detailed and justified design brief clearly outlining their product’s goals, intended user needs, and success criteria based on research insights. ● Generate multiple creative, feasible design ideas, documenting these through sketches, annotations, brainstorms, or mood boards. ● Clearly articulate and justify their final selected design using feedback from peers and relevant stakeholders who know the target person. ● Develop precise, detailed planning drawings or diagrams that accurately communicate the intended design solution. ● Create a logical step-by-step production plan, detailing time management, resources needed, tools, safety considerations, and methods to keep the design secretive until completion. ● Demonstrate excellent technical skills during the making process, documenting each key step through photos and annotations. ● Follow their logical plan carefully, adapting and justifying changes clearly where needed. ● Conduct relevant tests (such as interviews, observations, and reaction assessments upon receiving the gift) to evaluate the success of their product against established criteria. ● Critically assess their product’s success, clearly documenting which specifications were met and identifying areas for improvement based on authentic user feedback. ● Reflect deeply on the impact of their designed solution on the targeted individual, particularly focusing on relationship building, empathy, and emotional resonance. ● Exhibit resilience and adaptability by overcoming challenges encountered during the design and making processes. ● Collaboratively engage in feedback sessions, actively listening and providing constructive, empathetic input to peers.

		● Participate actively in the gift-exchange event, articulating insights gained through the design process and reflecting on how the experience enhanced their understanding of sustainable lifestyles and empathy.